

EARLY EXPERIMENTS IN ATMOSPHERIC ELECTRICITY.

By Prof. CHARLES E. WEST.

From a historical point of view the meteorological observers of America will always retain an interest in the work of Prof. Joseph Henry, who, during his extensive magnetic researches, found occasion to turn his attention to meteorology and atmospheric electricity. Although he has himself published some account of his work, yet, as in the case of his friend, Prof. Arnold Guyot, there is a widespread conviction that, through an excess of modesty, as well as through a willingness to be helpful to others (to say nothing of some cases of actual robbery), he has frequently failed to be credited with important scientific discoveries. Possibly, therefore, the following letter will be of interest as coming from Mr. Charles E. West, one of the oldest members of the American Association for the Advancement of Science; the letter is dated Brooklyn, N. Y., October 9, 1896:

You desire me to give, for publication in your REVIEW, some remarks made by me at the meeting of the A. A. A. S. in Buffalo, last summer, concerning certain electrical experiments made in my laboratory in New York, July, 1842.

I copy from my notebook:

Among my warm personal friends was Joseph Henry, of Washington. I made his acquaintance in 1842. In the summer of that year he spent several days with me in experimenting on atmospheric electricity, to show the inductive action of lightning in magnetizing sewing needles or other pieces of steel. A helix of copper wire, insulated by being inclosed in cotton, was made with an opening in the center large enough to receive an ordinary sewing needle. The helix was fastened near the window of my laboratory, and a wire of like kind, attached to the upper end of the helix, extended from it to the tin roof of the building, to which it was soldered. A similar wire from the lower end of the helix passed down to the bottom of a deep well in the yard.

We were then ready for a thunderstorm. There came up a shower off in the direction of the Palisades, in New Jersey. A needle was inserted into the helix. After the lightning's flash it was withdrawn and found to be a permanent magnet. Needle after needle was thus treated, during the shower, and made magnetic.

Here is a copy of the professor's directions:

"When you see the flash, draw out the needle and count one, two, three, etc., until you hear the thunder. If five seconds elapse, the electric discharge will be a mile off. When you hear the thunder, apply the needle, and if it attracts, put it on the paper for future reference.

"1. If the lower end or the eye of the needle attracts the north pole, the electricity went from the cloud to the earth.

"2. If the lower end of the needle repels, then the electrical discharge passed from the earth to the cloud."

Our first experiment was made July 9, 1842; our second, July 20, and our third, July 24.

For a year or two I repeated these experiments, and sent the needles to Professor Henry, at his residence in Princeton. The helix and some of the needles are still in my possession.

Such, in brief, is the story of an interesting incident of my acquaintance with one of our greatest American scientists.

I occasionally visited him, and spent many profitable hours in his laboratory. We frequently corresponded on scientific subjects. After his death, I read a paper before the American Ethnological Society of New York, May 27, 1878, entitled, Remarks upon the Electrical Researches, etc., of Joseph Henry, LL.D., late secretary of the Smithsonian Institution, of Washington, D. C., in which I endeavored to express my appreciation of his distinguished scientific abilities and his exalted and distinguished Christian character.

THE INTERNATIONAL METEOROLOGICAL CONFERENCE IN PARIS.

By ROBERT H. SCOTT, Sec. Int. Met. Committee.

As has already been announced, this meeting was held in September, under the presidency of Professor Mascart, and lasted seven days (September 17-23, inclusive). The last meeting of a similar character had been held in Munich in 1891. The Paris meeting was attended by some forty members. Canada and Mexico were represented for the first time; neither Spain, Portugal, Brazil, nor the Argentine States were represented. The Weather Bureau, Washington, sent no one; Mr. Page came from the Hydrographic Office, Washington, but only in a private capacity.

Dr. Hann's absence from the meeting, on the ground of health, was universally regretted.

The programme for discussion consisted of over forty questions, and to these Mr. Wragge, of Brisbane, proposed to add more than a score; but several of his applications were ruled as *ultra vires* for the Conference. Some of the questions on the programme were set aside as either reopening discussions which had been closed years ago, or as being impossible of acceptance; as, for instance, one as to the adoption of a period of 26.67928 days for all meteorological and magnetical phenomena.

The business really done, was, in brief:

Committees were appointed, as already announced (Nature, October 1), to carry on investigations into (1) terrestrial magnetics and atmospheric electricity; (2) cloud observations; (3) balloon ascents; (4) sunshine and radiation.

It was recommended, at the suggestion of Mr. Symons, that systematic comparisons of different forms of thermometer exposure be carried out generally, Assmann's apparatus for ventilated thermometers to be one of the forms tested.

The Conference declined to make any recommendation as to a standard anemometer, or as to anemometer exposure.

Several applications were made to the Conference to exert, by resolutions, pressure on governments with a view to the obtaining of grants for investigations; but these were ruled as *ultra vires*. Mr. Wragge's requests for stations in Tasmania, and for observations on Mount Wellington, Tasmania, and also on Mount Kosciusko, in Australia, were met by the general declaration that the Conference must welcome the establishment of good stations all over the world.

Dr. Neumayer's proposals to modify existing systems of meteorological telegraphy in Europe were not accepted.

Four questions as to the discussion of phenomena in cyclones were held to be purely theoretical, and therefore unsuitable for discussion at a conference.

Professor Mohn submitted some proposals as to the use of the hypsometer. No discussion ensued, but Professor Mohn's paper will be printed in the appendix to the report of the Conference.

Dr. Paulsen, of Copenhagen, exhibited monthly ice charts of the North Atlantic north of the sixtieth parallel, and received a promise of assistance in their completion from the members present, who were in a position to obtain observations of ice.

Dr. Snellen, of Utrecht, requested the Conference to take measures for convening a new maritime conference, to carry on further the work done at the London Conference of 1874. This matter was referred to the international committee.

The chief feature of the Paris meeting was the attention paid to the terrestrial magnetism and atmospheric electricity. The committee appointed for these subjects held three meetings, of which the minutes will shortly appear, and, as has already been stated, a committee has been nominated to carry on the discussion of various points which have been raised.

Finally, the international meteorological committee has been reappointed with a few modifications, owing to resignations, etc. Its members now are:

Dr. von Bezold (Germany).
Dr. Billwiller (Switzerland).
Admiral Capello (Portugal).
Mr. Davis (Argentine Republic).
Mr. Eliot (India).
Professor Hann (Austria).
M. Hepites (Roumania).
Professor Hildebrandsson (Sweden).
Professor Mascart (France), *President*.
Professor Mohn (Norway).
Prof. W. L. Moore (United States).
Dr. Paulsen (Denmark).
Mr. Russell (New South Wales).
Major-General Rykatcheff (Russia).
Mr. Scott (England), *Secretary*.
Dr. Snellen (Holland).
Professor Tacchini (Italy).